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10/707,736	01/08/2004	CHRIS DONG	10653-US-PA	1735
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/707,736	DONG ET AL.
	Examiner William Boddie	Art Unit 2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-29 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 January 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____ .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____ .

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The following title is suggested: Liquid Crystal Display and a Back Light Module containing a Fluorescent Layer.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 4 and 5 recites the limitations "the light diffusing surface" and "the linear light source" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

It appears that the Applicant intended for these claims to be dependent upon claim 3, instead of the currently claimed claim 2. This appears to mirror the dependency of similar claims 13-14. As such claims 4 and 5 will be examined in the current application under the assumption that they were intended to be dependent upon claim 3.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6, 7, 10, 15, 16, 19, 20, 22, 24 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Uehara et al. (US 4,772,885).

With respect to claim 1, Uehara discloses, a back light module (141, 143 and 151 in fig. 12) for providing a full-color surface light source, comprising:

a surface light source (151 in fig. 12);

a light-shielding matrix (143 in fig. 12) formed on the surface of the surface light source, wherein the light-shielding matrix has a plurality of lattice points (144a,b,c in fig. 12) that exposes the underlying surface light source; and

a fluorescent layer formed inside the lattice points (col. 9, lines 18-22).

With respect to claim 6, Uehara discloses, the back light module of claim 1 (see above), wherein the fluorescent layer comprises;

a plurality of first fluorescent-based material (144a in fig. 12) for converting the light from the surface light source into a second color; and

a plurality of second fluorescent-based material (144b in fig. 12) for converting the light from the surface light source into a second color; and

a plurality of third fluorescent-based material (144c in fig. 12) for converting the light from the surface light source into a third color (col. 9, lines 18-31).

With respect to claim 7, Uehara discloses, the back light module of claim 6 (see above), wherein the first fluorescent-based material, the second fluorescent-based material and the third fluorescent-based material are arranged to form a mosaic pattern (col. 9, lines 12-15).

With respect to claim 10, Uehara discloses, a liquid crystal display (figs. 11/12), comprising:

A back light module comprising:

- a surface light source (151 in fig. 12);
- a light-shielding matrix (143 in fig. 12) formed on the surface of the surface light source, wherein the light-shielding matrix has a plurality of lattice points (144a,b,c in fig. 12) that exposes the underlying surface light source;
- a fluorescent layer formed inside the lattice points (col. 9, lines 18-22); and
- a liquid crystal display panel (35 in fig. 12) positioned over the back light module (clear from fig. 12).

With respect to claim 15, Uehara discloses, the back light module of claim 10 (see above), wherein the fluorescent layer comprises;

- a plurality of first fluorescent-based material (144a in fig. 12) for converting the light from the surface light source into a second color; and
- a plurality of second fluorescent-based material (144b in fig. 12) for converting the light from the surface light source into a second color; and
- a plurality of third fluorescent-based material (144c in fig. 12) for converting the light from the surface light source into a third color (col. 9, lines 18-31).

With respect to claim 16, Uehara discloses, the back light module of claim 15 (see above), wherein the first fluorescent-based material, the second fluorescent-based material and the third fluorescent-based material are arranged to form a mosaic pattern (col. 9, lines 12-15).

With respect to claim 19, Uehara discloses, the liquid crystal display of claim 10 (see above), wherein the liquid crystal display panel furthermore comprises:

an array substrate (15 in fig. 11);
an opposite substrate formed over the array substrate (13 in fig. 11); and
a liquid crystal layer (19 in fig. 11) sandwiched between the array substrate and the opposite substrate.

With respect to claim 20, Uehara discloses, the liquid crystal display of claim 19 (see above), wherein the array substrate comprises a thin film transistor array substrate (col. 7, lines 12-17) with an interior surface having an array of thin film transistors thereon and a plurality of pixel electrodes (21 in fig. 11) that correspond with the thin film transistors.

With respect to claim 22, Uehara discloses, the liquid crystal display of claim 20 (see above), wherein the opposite substrate further more comprises a common electrode layer (23 in fig. 11).

With respect to claim 24, Uehara discloses, the liquid crystal display of claim 10 (see above), wherein the liquid crystal display panel furthermore comprises:

a bottom substrate (15 in fig. 11);
a top substrate (13 in fig. 11) positioned over the bottom substrate; and
a liquid crystal layer (19 in fig. 11) sandwiched between the top substrate and bottom substrate (fig. 11).

With respect to claim 28, Uehara discloses, the liquid crystal display of claim 10 (see above), wherein the display furthermore comprises a first polarizing plate (31 in fig.

11) and a second polarizing plate (33 in fig. 11) such that the first polarizing plate and the second polarizing plate are attached to the surface of the liquid crystal display panel (11 in fig. 11).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Nakabayashi et al. (US 6,379,017).

With respect to claim 2, Uehara discloses, the back light module of claim 1 (see above), wherein the surface light source comprises a lamp for emitting an electromagnetic radiation, for exciting a fluorescent material (col. 10, lines 55-59).

Uehara does expressly disclose, wherein the surface light source comprises a cold cathode fluorescent flat lamp.

Nakabayashi discloses, a back light module wherein a surface light source (2 in fig. 19) comprises a cold cathode fluorescent flat lamp (col. 17, lines 11-17).

Nakabayashi and Uehara are analogous art because they are both from the same field of endeavor namely construction of back light modules.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lamp source of Uehara with the lamp source and light guide of Nakabayashi.

The motivation for doing so would have been to achieve a more even luminance across the device (Nakabayashi; col. 1, lines 61-64).

Therefore it would have been obvious to combine Nakabayashi with Uehara for the benefit of even luminance to obtain the invention as specified in claim 2.

With respect to claim 11, Uehara discloses, the liquid crystal display of claim 10 (see above).

Uehara does expressly disclose, wherein the surface light source comprises a cold cathode fluorescent flat lamp.

Nakabayashi discloses, a back light module wherein a surface light source (2 in fig. 19) comprises a cold cathode fluorescent flat lamp (col. 17, lines 11-17).

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lamp source of Uehara with the lamp source and light guide of Nakabayashi.

The motivation for doing so would have been to achieve a more even luminance across the device (Nakabayashi; col. 1, lines 61-64).

Therefore it would have been obvious to combine Nakabayashi with Uehara for the benefit of even luminance to obtain the invention as specified in claim 11.

9. Claims 3-4 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Ciupke et al. (US 5,485,354).

With respect to claim 3, Uehara discloses, the back light module of claim 1 (see above), further comprising: a linear light source (151 in fig. 12).

Uehara does not expressly disclose a light-guiding plate, or a reflective holder.

Ciupke discloses, a back light module comprising: a light-guiding plate (11 in fig. 2) having a light-receiving surface (left side of plate in fig. 2), a light-emitting surface (14 in fig. 2) and a light-diffusing surface; a reflective holder (26 in fig. 2) positioned close to the light-receiving surface; and a linear light source (23 in fig. 2) enclosed by the reflective holder (clear from fig. 2).

Uehara and Ciupke are analogous art because they are both from the same field of endeavor namely the design of back light modules.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the light source of Uehara with the light source and light guide plate of Ciupke.

The motivation for doing so would have been, to improve the uniformity of the light emitted from the device (Ciupke; col. 2, lines 2-7).

Therefore it would have been obvious to combine Ciupke with Uehara for the benefit of uniform luminance to obtain the invention as specified in claim 3.

With respect to claim 4, Uehara and Ciupke disclose, the back light module of claim 3 (see above; also note the assumption in the above 112 rejection).

Ciupke further discloses, wherein the light-diffusing surface has a plurality of V-cuts (17, 16 in fig. 2).

With respect to claim 12, Uehara discloses, the liquid crystal display of claim 10 (see above).

Uehara does not expressly disclose a light-guiding plate, or a reflective holder.

Ciupke discloses, a back light module comprising: a light-guiding plate (11 in fig. 2) having a light-receiving surface (left side of plate in fig. 2), a light-emitting surface (14 in fig. 2) and a light-diffusing surface; a reflective holder (26 in fig. 2) positioned close to the light-receiving surface; and a linear light source (23 in fig. 2) enclosed by the reflective holder (clear from fig. 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the light source of Uehara with the light source and light guide plate of Ciupke.

The motivation for doing so would have been, to improve the uniformity of the light emitted from the device (Ciupke; col. 2, lines 2-7).

Therefore it would have been obvious to combine Ciupke with Uehara for the benefit of uniform luminance to obtain the invention as specified in claim 12.

With respect to claim 13, Uehara and Ciupke disclose, the back light module of claim 12 (see above).

Ciupke further discloses, wherein the light-diffusing surface has a plurality of V-cuts (17, 16 in fig. 2).

10. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Ciupke et al. (US 5,485,354) and further in view of Nakabayashi et al. (US 6,379,017).

With respect to claim 5, Uehara and Ciupke disclose, the back light module of claim 3 (see above; also note the assumption in the 112 rejection).

Neither Ciupke nor Uehara expressly disclose the specific use of a cold cathode fluorescent lamp or a light emitting diode array.

Nakabayashi discloses, a back light module wherein a surface light source (2 in fig. 19) comprises a cold cathode fluorescent flat lamp (col. 17, lines 11-17).

Nakabayashi, Ciupke and Uehara are analogous art because they are both from the same field of endeavor namely construction of back light modules.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lamp source of Uehara and Ciupke with the lamp source of Nakabayashi.

The motivation for doing so would have been the well-known advantage of cold cathode fluorescent lamps to operate at near ambient temperatures.

Therefore it would have been obvious to combine Nakabayashi with Uehara and Ciupke for the benefit of lower operating temperature to obtain the invention as specified in claim 5.

With respect to claim 14, Uehara and Ciupke disclose, the back light module of claim 12 (see above).

Neither Ciupke nor Uehara expressly disclose the specific use of a cold cathode fluorescent lamp or a light emitting diode array.

Nakabayashi discloses, a back light module wherein a surface light source (2 in fig. 19) comprises a cold cathode fluorescent flat lamp (col. 17, lines 11-17).

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lamp source of Uehara and Ciupke with the lamp source of Nakabayashi.

The motivation for doing so would have been the well-known advantage of cold cathode fluorescent lamps to operate at near ambient temperatures.

Therefore it would have been obvious to combine Nakabayashi with Uehara and Ciupke for the benefit of lower operating temperature to obtain the invention as specified in claim 14.

11. Claims 8-9 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Morozumi (US 4,600,274).

With respect to claim 8, Uehara discloses, the back light module of claim 1 (see above), wherein the surface light source provides a light source (151 in fig. 12) the fluorescent layer (143 in fig. 12) is formed in the lattice points, the fluorescent layer comprises:

a plurality of first fluorescent-based material for converting the first color light from the surface light source into a second color (144a in fig. 12); and

a plurality of second fluorescent-based material for converting the first color light from the surface light source into a third color (144b in fig. 12).

Uehara does not expressly disclose that the light source is of a first color or that the fluorescent layer is formed in some of the lattice points only.

Morozumi discloses, a liquid crystal device having a multiple color filters to filter a light source emitting white light (fig. 16, filters, 161-163). Furthermore, Morozumi leaves one of the cells transparent to emit white light (164 in fig. 16).

Morozumi and Uehara are analogous art because they are both from the same field of endeavor namely, color filter design for liquid crystal displays.

At the time of the invention it would have been obvious to include a transparent cell, taught by Morozumi, in some of the lattice points of the fluorescent layer of Uehara.

The motivation for doing so would have been to improve overall brightness and the color reproduction of the device (Morozumi; col. 10, lines 43-45).

Therefore it would have been obvious to combine Morozumi with Uehara for the benefit of color reproduction to obtain the invention as specified in claim 8.

With respect to claim 9, Morozumi and Uehara disclose, the backlight module of claim 8 (see above).

Uehara further discloses, wherein the first fluorescent-based material, the second fluorescent-based material and the lattice point without any fluorescent material are arranged to form a mosaic pattern (col. 9, lines 12-15).

With respect to claim 17, Uehara discloses, the back light module of claim 10 (see above), wherein the surface light source provides a light source (151 in fig. 12) the fluorescent layer (143 in fig. 12) is formed in the lattice points, the fluorescent layer comprises:

a plurality of first fluorescent-based material for converting the first color light from the surface light source into a second color (144a in fig. 12); and

With respect to claim 21, Uehara discloses, the liquid crystal display of claim 20 (see above).

Uehara does not expressly disclose, wherein the display furthermore comprises a first alignment film positioned over the interior surface of the thin film transistor array substrate to cover the thin film transistors and the pixel electrodes.

Asai discloses, a LCD display (fig. 2) that comprises a first alignment film (401 in fig. 2) positioned over an interior surface (125 in fig. 2) of a thin film transistor (121 in fig. 2) array (fig. 3) substrate to cover the thin film transistors and pixel electrodes (131 in fig. 2).

Asai and Uehara are analogous art because they are both from the same field of endeavor namely, active matrix liquid crystal display devices and their respective components.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the alignment films disclosed by Asai in the LCD display of Uehara.

The motivation for doing so would have been to achieve the well known in the art advantage of having the LC molecules aligned in the same direction.

Therefore it would have been obvious to combine Asai with Uehara for the benefit of aligned LC molecules to obtain the invention as specified in claim 21.

With respect to claim 23, Uehara discloses, the liquid crystal display of claim 22 (see above).

a plurality of second fluorescent-based material for converting the first color light from the surface light source into a third color (144b in fig. 12).

Uehara does not expressly disclose that the light source is of a first color or that the fluorescent layer is formed in some of the lattice points only.

Morozumi discloses, a liquid crystal device having a multiple color filters to filter a light source emitting white light (fig. 16, filters, 161-163). Furthermore, Morozumi leaves one of the cells transparent to emit white light (164 in fig. 16).

Morozumi and Uehara are analogous art because they are both from the same field of endeavor namely, color filter design for liquid crystal displays.

At the time of the invention it would have been obvious to include a transparent cell, taught by Morozumi, in some of the lattice points of the fluorescent layer of Uehara.

The motivation for doing so would have been to improve overall brightness and the color reproduction of the device (Morozumi; col. 10, lines 43-45).

Therefore it would have been obvious to combine Morozumi with Uehara for the benefit of color reproduction to obtain the invention as specified in claim 17.

With respect to claim 18, Morozumi and Uehara disclose, the backlight module of claim 17 (see above).

Uehara further discloses, wherein the first fluorescent-based material, the second fluorescent-based material and the lattice point without any fluorescent material are arranged to form a mosaic pattern (col. 9, lines 12-15).

12. Claims 12, 23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Asai et al. (US 6,166,713).

Uehara does not expressly disclose, wherein the display furthermore comprises a second alignment film positioned over the interior surface of the opposite substrate to cover the common electrode layer.

Asai discloses, a LCD display (fig. 2) that comprises a second alignment film (411 in fig. 2) positioned over an interior surface of an opposite substrate (200 in fig. 2) to cover a common electrode layer (231 in fig. 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the alignment films disclosed by Asai in the LCD display of Uehara.

The motivation for doing so would have been to achieve the well known in the art advantage of having the LC molecules aligned in the same direction.

Therefore it would have been obvious to combine Asai with Uehara for the benefit of aligned LC molecules to obtain the invention as specified in claim 23.

With respect to claim 25, Uehara discloses, the liquid crystal display of claim 24 (see above), wherein the bottom substrate has a plurality of first stripe electrodes (21 in fig. 11) and the top substrate has a plurality of second stripe electrodes (23 in fig. 11) such that the first stripe electrodes extend in a direction perpendicular to the second stripe electrodes (fig. 11; col. 7, lines 18-29).

With respect to claim 26, Uehara discloses, the liquid crystal display of claim 25 (see above).

Uehara does not expressly disclose, wherein the display furthermore comprises a first alignment film positioned over the interior surface of the bottom substrate to cover the first stripe electrodes.

Asai discloses, a LCD display (fig. 2) that comprises a first alignment film (401 in fig. 2) positioned over an interior surface (125 in fig. 2) of a bottom substrate (101 in fig. 2) to cover first stripe electrodes (131 in fig. 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the alignment films disclosed by Asai in the LCD display of Uehara.

The motivation for doing so would have been to achieve the well known in the art advantage of having the LC molecules aligned in the same direction.

Therefore it would have been obvious to combine Asai with Uehara for the benefit of aligned LC molecules to obtain the invention as specified in claim 26.

With respect to claim 27, Uehara discloses, the liquid crystal display of claim 25 (see above).

Uehara does not expressly disclose, wherein the display furthermore comprises a second alignment film positioned over the interior surface of the top substrate to cover the second stripe electrodes.

Asai discloses, a LCD display (fig. 2) that comprises a second alignment film (411 in fig. 2) positioned over an interior surface of a top substrate (200 in fig. 2) to cover second stripe electrodes (231 in fig. 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the alignment films disclosed by Asai in the LCD display of Uehara.

The motivation for doing so would have been to achieve the well known in the art advantage of having the LC molecules aligned in the same direction.

Therefore it would have been obvious to combine Asai with Uehara for the benefit of aligned LC molecules to obtain the invention as specified in claim 27.

13. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al. (US 4,772,885) in view of Lee et al. (US 2003/014060).

With respect to claim 29, Uehara discloses, the liquid crystal display of claim 10 (see above).

Uehara does not expressly disclose a prism.

Lee discloses, wherein the display further more comprises a prism positioned between a liquid crystal display panel and a back light module (para. 5).

Lee and Uehara are analogous art because they are both from the same field of endeavor namely construction of back light modules.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include a prism, as in Lee, between the light source and the LCD of Uehara.

The motivation for doing so would have been to increase the brightness of the light (Lee; para. 5).

Therefore it would have been obvious to combine Lee with Uehara for the benefit of a brighter display to obtain the invention as specified in claim 29.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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8/17/06



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